

ABSTRACT

The subject of the present invention is to provide a method for producing D-lactic acid in high yield, and to provide a method for producing D-lactic acid with high selectivity, in which
5 optical purity is high and a by-product organic acid is small.

A microorganism, wherein activity of pyruvate formate-lyase (pfl) is inactivated or decreased, and further activity of Escherichia coli-derived NADH-dependent D-lactate dehydrogenase (ldhA) is enhanced, is cultured to produce a remarkable amount of
10 D-lactic acid in a short time. With regard to a method for enhancing ldhA activity, by linking, on a genome, a gene encoding ldhA with a promoter of a gene which controls expression of a protein involved in a glycolytic pathway, a nucleic acid biosynthesis pathway or an amino acid biosynthesis pathway,
15 suitable results are obtained compared to the method for enhancing expression of the gene using an expression vector.

In addition, a microorganism in which a dld gene is substantially inactivated or decreased is cultured to produce high quality D-lactic acid with reduced concentration of pyruvic acid.

20 Furthermore, it is possible to suppress by-production of succinic acid and fumaric acid while maintaining high D-lactic acid productivity by using the above-mentioned microorganism having a TCA cycle, wherein activity of malate dehydrogenase (mdh) is inactivated or decreased, and further activity of aspartate
25 ammonia-lyase (aspA) is inactivated or decreased.